

What is claimed is:

1. A method for manufacturing a non-volatile memory of a SONOS (Silicon-Oxide-Nitride-Oxide-Silicon) structure,
5 comprising the steps of:
 - depositing an oxide film on a substrate;
 - removing a flash device area and a logic gate area,
wherein the flash device area and the logic gate area are
areas of the oxide film on which a flash device and a logic
10 gate is to be formed, respectively;
 - stacking a tunnel oxide layer on an opened surface of
the substrate corresponding to the area of the oxide film;
 - stacking a first polysilicon over the resultant
structure;
 - 15 carrying out a polish with respect to the first
polysilicon down to a top surface of the oxide film;
 - removing the oxide film;
 - forming an LDD (lightly doped drain) in an upper
portion of the substrate excepting an area occupied by the
20 tunnel oxide layer;
 - depositing a sidewall on a side of the first
polysilicon;
 - generating a drain and a source beneath the LDD
excepting an area contacted to the sidewall;
 - 25 stacking a TEOS (Tetra Ethyl Ortho Silicate) on the
resultant structure excepting the flash device area;

depositing an ONO (Oxide-Nitride-Oxide) layer over the resultant structure;

stacking a second polysilicon over the ONO layer;

carrying out a polish with respect to the second
5 polysilicon and the ONO layer down to a top surface of the TEOS; and

removing the TEOS.

2. The method of claim 1, wherein the substrate is made
10 of silicon.

3. The method of claim 1, wherein a thickness of the oxide film is about 2000 Å to 3000 Å.

15 4. The method of claim 1, wherein the polish is a chemical-mechanical polish.